

Notice of Allowability

Application No.

10/701,163

Applicant(s)

CLAWSON ET AL.

Examiner

Fred Prince

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1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to May 18, 2005.
2. ☒ The allowed claim(s) is/are 1 and 4-37 (renumbered as 1-35).
3. ☒ The drawings filed on 03 November 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 0605.
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Fred G. Prince
FRED G. PRINCE
PRIMARY EXAMINER
6/30/05

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Linda Fox on June 30, 2005.

The application has been amended as follows:

In claim 36, line 11, after "gaseous", "stream" has been deleted and --stream, without passing into contact with the ozone/aqueous mixture in the separating vessel, directly-- inserted therefor.

REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance:

Claims 1 and 4-33 are allowed for the reasons presented by the examiner in the Office Action mailed February 14, 2005.

Per claims 34-35, while it is known in the art to provide an ozone/water mixing apparatus comprising: a separating vessel structured to contain and degas an ozone/aqueous mixture, the separating vessel including an off-gas outlet placed and structured to vent undissolved ozone gas from the separating vessel, and

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an ozonated water outlet placed and structured to pass the ozone/aqueous mixture from the separating vessel to an application for use; and a mixing tower, extending into the separating vessel, the mixing tower including an inlet portion structured to receive an ozone/aqueous stream (see, for example, US Pat No 5,931,990 to Andrews), in the examiner's opinion, the prior art fails to teach or fairly suggest combining the prior art such that ozone/water mixing apparatus further includes an outlet portion comprising a diffuser element including a plurality of radially disposed apertures for passing the ozone/aqueous mixture from the mixing tower and into the separating vessel. The instant invention provides the advantage of reducing turbulence.

Per claims 36-37, while it is known in the art to provide an ozone/water mixing system including a separating vessel structured to contain and degas an ozone/aqueous mixture, the separating vessel including an off-gas outlet placed and structured to vent undissolved ozone gas from the separating vessel, and an ozonated water outlet placed and structured to pass an ozone/aqueous mixture from the separating vessel to an application for use; a venturi injector assembly operatively coupled to the separating vessel and structured to inject an ozone-containing gaseous stream into an aqueous stream to form the ozone/aqueous mixture, a mixing tower extending into the separating vessel and including an inlet portion structured to receive the ozone/aqueous mixture from the venturi injector assembly, and an outlet portion structured to pass the ozone/aqueous mixture into the separating vessel (see, for example, US Pat No 5,951,921 to Koganezawa et al.), in the examiner's opinion, the prior art fails to teach or fairly suggest an apparatus having the above elements in

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combination with means for feeding ozone without the ozone having been inside the separator. The instant invention provides the advantage of better controlling the purity and amount of ozone fed to the mixing tower inlet. In the case of Koganezawa et al., the ozone fed into the inlet of the mixing tower must first be inside the separating vessel itself, which vessel would necessarily contain other gases such as air, oxygen, and/or gaseous products of decomposition including carbon dioxide, thereby reducing or at least making uncertain the amount of ozone fed into the inlet in a given volume of gas.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Prince whose telephone number is (571) 272-1165. The examiner can normally be reached on Monday-Thursday, 6:30-4:00; alt. Fridays 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Fred Prince
Primary Examiner
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6/30/05